ILLEGIB

OSA-5533-63

[redacted]

24 October 1963

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MEMORANDUM FOR : Deputy for Technology (Special Activities)

SUBJECT : Oxygen Consumption

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25X1A [redacted] of the David Clark Co. came upon what appears to be the logical answer to why higher rates of oxygen consumption seem to prevail for full pressure suits when compared to partial pressure suits.

Quite briefly, the situation seems to be that when the pressure suit is partially inflated, as a result of vent flow back pressure, the man produces a pressure wave when he moves. This wave of pressure dynamically moves the face barrier which makes the resultant mask pressure dump overboard. Upon decay of the pressure wave, a demand on the breathing regulator to refill the mask would occur even though the man did not make a demand on the regulator for breathing.

There seem to be two approaches to this problem.

1. Reduce the sensitivity of the breathing regulator.

2. Reduce the suit vent flow back pressure to an absolute minimum. This involves the suit vent antiblock and the flow characteristics of the suit controller exhaust port.

David Clark Co. is working on a redesign of the antiblock. Firewel Co. is responsible for the suit controller and will pursue the problem of the controller exhaust port and the breathing regulator.

SIGNED

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